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FACT SHEET
BEAR RIVER CITY CORPORATION
RENEWAL PERMIT: DISCHARGE, BIOSOLIDS & STORM WATER
UPDES PERMIT NUMBER: UT0020311
MINOR MUNICIPAL

FACILITY CONTACTS

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DESCRIPTION OF FACILITY

Bear River City (City) is located northwest of Ogden in Box Elder County. The 2010 census showed that there are 853 people who live in the city. The City lagoon system was put into operation in 1974 to treat residential sewage for the City. The design flow of the treatment facility is 0.36 million gallons per day. The treatment facility consists of a pump station, a pressurized 6 inch line, followed by a six cell facultative lagoon system that has a total containment capacity of 54.4 acre feet, with a surface area of 10.4 acres. The primary cell was designed for 156 pounds of BOD_5 per day with a population equivalent of 916 people. The outfall STORET number is 490203.

DESCRIPTION OF DISCHARGE

Outfall	Description of Discharge Point
001	Located at latitude 41°35'58" and longitude 112°08'32". The outfall is in a manhole, with a 90 degree, v-notch weir, that flows into an 8" concrete pipe and discharges directly into the Malad River.

RECEIVING WATERS AND STREAM CLASSIFICATION

The final discharge flows into the Malad River, then to the Bear River. The Malad River is classified as 2B and 3C according to *Utah Administrative Code (UAC) R317-2-13.3(a).*

Class 2B	-Protected for secondary contact recreation such as boating, wading, or similar uses.
Class 3C	-Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.

A wasteload analysis (WLA) was conducted based on the receiving water background conditions and the design flow of the facility. The resulting values from the WLA are attached.

TOTAL MAXIMUM DAILY LOADS (TMDL) AND IMPARMENT LISTINGS

The Bear River City Lagoons discharge to the Malad River which is tributary to a segment of the Bear River that is 303(d) listed for total phosphorous (TP) and total suspended solids (TDS). A TP TMDL was completed for the Bear River on September 9th, 2002. The TMDL indicated that the three point sources in this segment, Corinne, Bear River and Tremonton cities accounted for approximately 3% of the total phosphorous load to the Lower Bear River. The remaining 97% is attributed to nonpoint sources. Given that the non-point source TP loads overshadow the point source contributions, the time-frame for including TP effluent limits for the small towns of Bear River City, Tremonton and Corinne is not urgent. The Lower Bear River TP TMDL may be reevaluated in the future so continued TP monitoring is required. In addition, a future TMDL for TDS in the Lower Bear River will include an evaluation of TDS loading from the treatment plant. Thus, TDS monitoring is being added during this permit renewal.

BOD5 AND TSS ALTERNATIVE DISCHARGE & 85% REMOVAL LIMITATIONS

On September 23, 2009, the City applied for the alternate discharge limitations under R317-1-3.2.G., which allows lagoon systems to discharge BOD_5 and total suspended solids (TSS) concentrations of 45 mg/l monthly average, 65 mg/l weekly average limitations, if the lagoon system meets 5 criteria. As part of this application, the City also applied for an exemption from the permit limitations for 85% removal of BOD_5 and TSS. The alternative discharge limitations and 85% removal exemption were granted by the Director of the Division of Water Quality (Director) on October 12, 2009. The alternative discharge limitations were changed and the exemption incorporated as part of the 2009 permit renewal. However, as part of the application approval, the Director required the City to attempt to address the infiltration and inflow issues experienced during the 2004-2009 permit term. The Director required the permit be reevaluated to determine if the percent removal for BOD and TSS should be included in this renewal.

During the 2009-2015 permit cycle the City undertook a number of projects to address infiltration and inflow problems and provided information on projects since 2011. In June 2011, the entire system was flushed and filmed. The filming identified numerous trouble spots. In 2012, the lift station connecting the collection system to the lagoons was covered. In addition during spring 2013, trouble spots were identified and infiltration hot spots were inline grouted and a major infiltration near the main collection line was found and grouted. Last, the City is currently underway with a project for a land disposal alternative.

Facility Effluent Flow Rate (based on water year October – September)

	Annual Average Monthly Flow (mgd)	Maximum Monthly Average Flow (mgd)
2005[1]	0.59	0.79
2006	0.58	0.69
2007	0.63	0.69
2008	0.64	0.72
2009	0.54	0.76
2010	0.27	0.33
2011	0.21	0.36
2012	0.18	0.27
2013	0.26	0.35
2014	0.19	0.23
2015[2]	0.21	0.29

1. Only partial year January 2005-September 2005
2. Only partial year October 2014-March 2015

The table shows the average annual flow from 2005 to 2009 was 0.60 mgd and the average annual flow from 2010 to 2015 was 0.22 mgd. This represents the effluent discharge rates have more than halved on average. The significantly reduced effluent flow indicates that the City has been successful at lessoning the infiltration and inflow. The 85% removal requirement remains unattainable and percent removal effluent limitations will not be included in this permit renewal. The need for this requirement will be evaluated at the next permit renewal, therefore, sampling and reporting of influent BOD_5 and influent TSS will again be required.

DISCHARGE MONITORING RESULTS:

Discharge monitoring report (DMR) data was evaluated for the past 5 years for effluent limitation exceedances of TSS, BOD_5 and pH. During this time exceedances have occurred: once for BOD_5, five times for *E. coli*, eight times for pH, and five times for TSS. Eight of these exceedances are categorized as serious violations for exceeding the effluent limitation by 40% or more. Reviewing these exceedances, the operator needs to pay more diligent attention to the disinfection process for *E. coli* control during winter months. However, since many of these exceedances span over a number of years for each constituent no notices of violation have been issued to the facility. This is in large part to the facility operators responding to these exceedances.

Only eight months of ammonia monitoring results were available in DMR data for review. These data were compared with the seasonal standards calculated in the WLA. No value was greater than 50% of its seasonal standard. Based on this comparison ammonia monitoring will continue to be required but no effluent limitation will be set.

BASIS FOR EFFLUENT LIMITATIONS

The Water Quality Board has allowed the use of alternate limits for BOD and TSS for Bear River City's wastewater lagoon effluent limits per *UAC R317-1-3.2.G.* The BOD and TSS limit is 45 mg/L for a monthly average and 65 mg/L for a maximum weekly average. Limitations on total suspended solids (TSS), biochemical oxygen demand (BOD_5) are based on the alternate limits, which are allowed by the Water Quality Board. Utah Secondary Treatment Standards, *UAC R317-1-3.2,* set the *E. coli* and pH effluent limitations. The oil and grease limitation is based on best professional judgment (BPJ). In cases where no limits have been developed, BPJ may be used where applicable. "Best Professional Judgment" refers to the method used by permit writers to develop technology-based UPDES conditions on a case-by-case basis using all reasonably available and relevant data.

The total residual chlorine (TRC) and dissolved oxygen (DO) limits are based on the Waste Load Analysis. DO is included due to a known issue of low DO from lagoons. TRC is included due to the use of chlorination for disinfection. A flow limitation was included since total residual chlorine limits are based off of the WLA. The Waste Load Analysis (attached) indicates that these limits should be sufficiently protective of water quality, and will meet water quality standards in the receiving waters. The permit limitations are:

Parameter	Effluent Limitations[1]			
	Maximum Monthly Average	Maximum Weekly Average	Daily Minimum	Daily Maximum
Flow, mgd				0.36
BOD_5, mg/L	45	65		
Total Suspended Solids (TSS) mg/L	45	65		
E. coli, No./100mL	126	158		
pH, Standard Units			6.5	9.0
Dissolved Oxygen, mg/L			4.0	
Oil & Grease, mg/L				10.0
Total Residual Chlorine (mg/L)				0.166

1. See Definitions, *Part VI*, for definition of terms.

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements include some additions from the previous permit. Monitoring for total phosphorus, orthophosphate, total kjeldahl nitrogen, nitrate-nitrite, and ammonia are required in accordance with *UAC R317-1-3.3.D.* The permit will require reports to be submitted monthly on Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period.

Influent Self-Monitoring and Reporting Requirements[1]			
Parameter	**Frequency**	**Sample Type**	**Units**
Total Flow	**Continuous**	**Recorder**	**mgd**
BOD_5	**Monthly**	**Grab**	**mg/L**
TSS	**Monthly**	**Grab**	**mg/L**
Total Phosphorus (as P)[3]	**Monthly**	**Composite[4]**	**mg/L**
Total Kjeldahl Nitrogen (as N)[3]	**Monthly**	**Composite[4]**	**mg/L**

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Total Flow	**Continuous**	**Recorder**	**mgd**
BOD_5	**Monthly**	**Grab**	**mg/L**
TSS	**Monthly**	**Grab**	**mg/L**
E. coli	**Monthly**	**Grab**	**No./100mL**
pH	**Monthly**	**Grab**	**SU**
Dissolved Oxygen	**Monthly**	**Grab**	**mg/L**
Oil & Grease[5]	**Monthly**	**Grab**	**mg/L**
Total Dissolved Solids	**Monthly**	**Grab**	**mg/L**
Total Phosphorus (as P)[3]	**Monthly**	**Composite[4]**	**mg/L**
Orthophosphate (as P)[3]	**Monthly**	**Composite[4]**	**mg/L**
Ammonia (as N)[3]	**Monthly**	**Composite[4]**	**mg/L**
Nitrate-Nitrite (as N)[3]	**Monthly**	**Composite[4]**	**mg/L**
Total Kjeldahl Nitrogen (as N)[3]	**Monthly**	**Composite[4]**	**mg/L**

1. See Definitions, *Part VI*, for definition of terms.

2. Influent samples and the influent flow shall be monitored and measured at the same frequency as the effluent samples and the effluent flow.

3. Monitoring of these parameters shall be conducted and begin in accordance with R317-1-3.3.D.

4. Composite samples shall be 24 hour composites collected by use of an automatic sampler or minimum of four grab samples collected a minimum of two hours apart.

5. Sample only if a sheen is observed.

STORMWATER REQUIREMENTS

Wastewater Treatment Facilities, which includes Lagoon Systems, are required to comply with storm water permit requirements if they meet one or both of the following criteria,

1. The facility has an approved pretreatment program as described in 40 CFR Part 403.
2. The facility has a design flow of 1.0 MGD or greater.

The Bear River City Lagoon system does not meet either of the criteria, therefore a storm water permit is not required at this time. A storm water re-opener provision is included in the permit should a storm water permit be needed in the future.

PRETREATMENT REQUIREMENTS

The permittee has not been designated for pretreatment program development because it does not meet conditions which necessitate a full program. The flow through the plant is less than five (5) MGD, there are no categorical industries discharging to the treatment facility, industrial discharges comprise less than 1 percent of the flow through the treatment facility, and there is no indication of pass through or interference with the operation of the treatment facility such as upsets or violations of the POTW's UPDES permit limits.

Although the permittee does not have to develop a State-approved pretreatment program, any wastewater discharges to the sanitary sewer are subject to Federal, State and local regulations. Pursuant to *Section 307* of the *Clean Water Act*, the permittee shall comply with all applicable Federal General Pretreatment Regulations promulgated, found in *40 CFR 403* and the State Pretreatment Requirements found in *UAC R317-8-8*.

An industrial waste survey (IWS) is required of the permittee as stated in Part II of the permit. The IWS is to assess the needs of the permittee regarding pretreatment assistance. The IWS is required to be submitted within sixty (60) days after the issuance of the permit. If an Industrial User begins to discharge or an existing Industrial User changes their discharge the permittee must resubmit an IWS no later than sixty days following the introduction or change as stated in Part II of the permit.

It is recommended that the permittee perform an annual evaluation of the need to revise or develop technically based local limits for pollutants of concern, to implement the general and specific prohibitions *40 CFR, Part 403.5(a)* and *Part 403.5(b)*. This evaluation may indicate that present local limits are sufficiently protective, need to be revised or should be developed. It is required that the permittee submit any local limits that are developed to the Division of Water Quality for review and if needed public notice.

BIOMONITORING REQUIREMENTS

A nationwide effort to control toxic discharges where effluent toxicity is an existing or potential concern is regulated in accordance with the *State of Utah Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control (biomonitoring)*. Authority to require effluent

biomonitoring is provided in *Permit Conditions, UAC R317-8-4.2, Permit Provisions, UAC R317-8-5.3* and *Water Quality Standards, UAC R317-2-5* and *R317 -2-7.2*.

The permittee is a minor municipal intermittent discharger that will be contributing a small volume of effluent when compared to the existing receiving waters, in which toxicity is not likely to be present. Based on these considerations, and the fact that there are no present or anticipated industrial users on the system, there is no reasonable potential for toxicity in the permittee's discharge *(per State of Utah Permitting and Enforcement Guidance Document for WET Control)*. As such, there will be no numerical WET limitations or WET monitoring requirements in this permit. However, the permit will contain a toxicity limitation re-opener provision that allows for modification of the permit should additional information indicate the presence of toxicity in the discharge.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

Effluent limitations were added for total residual chlorine, dissolved oxygen, and flow. In addition, reporting requirements were added for TSS and BOD_5 percent removal. Monitoring for pH was decrease from 3 times per week to monthly. Monitoring for total phosphorus, orthophosphate, total kjeldahl nitrogen, nitrate-nitrite, and ammonia were added in accordance with *UAC R317-1-3.3.D.*

PERMIT DURATION

It is recommended that this permit be effective for duration of five (5) years. Drafted by:

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Pretreatment	Jen Robinson
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PUBLIC NOTICE

Began: May 29, 2015
Ended: June 29, 2015

Comments will be received at: 195 North 1950 West
PO Box 144870
Salt Lake City, UT 84114-4870

The Public Noticed of the draft permit was published in the Ogden Standard Examiner.

During the public comment period provided under R317-8-6.5, any interested person may submit written comments on the draft permit and may request a public hearing, if no hearing has already been scheduled. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. All comments will be considered in making the final decision and shall be answered as provided in R317-8-6.12.

Addition information will be added here based on comments received.